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1912

North Dakota Stump Lake, June 12-17

A great glacial trough or else a basin formed by burnt out coal beds. Shale crops out somewhere along shore but Granite boulders abundant above shale & especially so on top of the many hills & ridges. The lake is deep & strong of salt & alkali. No fish except minnows & stickbacks live in it now but up to about 1889 pickerel were abundant in it.

They all disappeared as they did from Devils Lake, evidently for lack of spawning grounds. The lake has fallen about 25 feet in 30 years & has no marshy borders or fresh water connections. Still it has much aquatic vegetation & is the home of hundreds of white winged scoters & other ducks which breed over the prairie or in hollow trees.

There is much timber around the lake in a strip half a mile wide or less. It is a good stand of not very large trees of bur oak, elm, boxelder, ash, wild plum, chokeberry & smaller brush.

Aspens grow on cold slopes or low wet places.

The prairie is high & rolling with  
numerous sloughs & coulees, glacial  
drift with little erosion. In times  
past streams have drained into the  
Bighorn River and Devil's Lake into  
it. Plowing the land has evidently  
taken the water & lowered the lakes.

June 17 Tolua to Devil's Lake & then to St. John & thence out to the Hatchery at what they call Fish Lake, or the Birchwood R.D. Worked here to the 22d, and drove over to Carpenter Lake the 21st

June 22, To Grand Forks

June 24, Grand Forks to Crookston & Manitoba junction & back to Fargo & Valley City. Stopped over night to see Prof. Morris Johnson & catch morning train for Linton.

June 25 Reached Linton & telephoned Eastgate at Winona to come up there. He arrived June 26.

## Linton

<i>Shepherdia argentea</i> ,	common along banks
<i>Rhus aromatica</i> ,	common on bare s. slopes
<i>Prunus besseyi</i> ,	common on a bare south slope and bearing fruit, only 4 1/2 inches high.
<i>Astragalus cana</i> ,	common on barren flats.
" <i>frigida</i> ,	abundant, one of the most characteristic plants.
<i>Astragalus ludovicianus</i> ,	abundant, very white.
<i>Gaillardia</i>	abundant. in blossom.
<i>Pentstemon</i>	common " spec.
" "	" "
" <i>forbesii</i> ,	a few seen along R.R.
<i>Lupinus pubescens</i> ,	a few, in blossom.
<i>Borago esculenta</i> ,	"
" <i>argophylla</i> ,	abundant.
<i>Oxybaphis lambertiana</i> ,	in blossom
<i>Amorpha canescens</i> ,	common
" <i>nigrophylla</i> ?	"
<i>Anemone canadensis</i> ,	" in meadows
<i>Pulsatilla patens</i> ,	"
<i>Polygala alba</i>	"
<i>Gaura coccinea</i>	"
<i>Verolix serrulata</i> ?	" on clay hills, spec.
<i>Oenothera</i>	yellow
"	pink

## Linton to N

Jan. 27. Caught *Perognathus* + 2 species of  
*Peromyscus* at Linton, packed up overalls  
up skins + started for Stump Lake  
with Eastgate and drove to near  
Napahor, about 40 miles.

At Tolna, on Beaver Creek,  
the valley lies between high ridges  
and flat topped mesas of the old  
prairie level. The warm slopes  
carry a number of Sonoran plants  
and the approach to arid plains  
is shown by several of the  
arid region plants, including 3  
species of cactus. The *Mammillaria*  
are beautifully in bloom & very  
abundant. A line of low timber  
follows the creek part way, in a  
series of interrupted groves  
but I did not get into it, having  
listed the species on a previous  
trip.

The soil is heavy clay with  
a few streaks of coarse gravel.  
It is rich and very productive of  
crops as well as originally of grass  
and native plants.

Linton

<i>Malvastrum coccineum</i> ,	abn. & blossoming.
<i>Plantago purshii</i> ,	"
<i>Linum rigidum</i> ?	Com. spec.
<i>Solidago rigida</i>	"
<i>Phlox douglasii</i> ,	" on dry hilltops,
<i>Cactus, Mammillaria vivipara</i> ?	Com. in full flower
<i>Opuntia missouriensis</i> ,	One large patch on S. slope
" <i>fragilis</i> .	Com. on barren places.
<i>Polygonum alba</i> .	"

Crops show the approach to summer gone but considerably advanced over those of the state north & east. Corn is a foot high against 4 inches at Fargo & the grain, flax, potatoes are correspondingly advanced. Several patches of early potatoes are in blossom, while farther east & north they are not half as large or advanced. Garden vegetables are correspondingly ahead.

This is excellent farming country, largely cultivated & the town is growing rapidly. Very little fruit or trees have been started.

After leaving town not a tree or bush was seen all day until on the lake border near Napoleon we found a row of old cottonwoods, apparently native. We came up steadily for about half the day & then gained the prairie level & continued over rolling, glaciated prairie with boulders & sloughs & good farms. The settlers are largely Russians.

Just before reaching Nopobon we crossed a wide tule marsh and to the north & south extend for miles the great lakes, or tule swamps, famous breeding & hunting grounds for water fowl. There were lots of ducks in sight in the open water and lots were in the tubes. We counted 7 species of ducks.

Mosquitos are fierce.

June 38. Did not sleep a wink all night but fought mosquitos which were in a dense swarm and wildly bloodthirsty. They covered my mosquito netting so I could not see through it and crawled under and even through the seam of my sleeping bag and enough got inside to bite me constantly inspite of all I could do. They crawled down in the bag & bit my feet & the whole length of me. There were quarts of dead mosquitos in my bed in the morning. The light streak in the east was very welcome. Eastgate slept in the tent, but with no better success. The horses went wild & broke loose from their picket rope but were caught. Their skins were thick & swollen in the morning, and ours were sore enough so we could sympathize with them.

Caught 2 Pterognathus fasciatus, some Peromyscus & Merotus. Started early, came through Hapobon & across the rolling prairie to Steele & camped on a hill just north of town. Not a tree or bush all day except in towns. and a few very small ones at ranches. Generally not any.

Struth & Medina & Chase Lake & Chicago Lake.

June 29 Caught Thorrocks & Promerops only.  
Continued north <sup>18 miles</sup> over were sandy prairies &  
Medina, then <sup>12 miles</sup> N.W. to Chase Lake & about 6 miles  
N.E. to a nice char lake <sup>Chicago Lake</sup> just beyond a big  
black tail slough & camped.

All rolling prairies with innumerable number of  
sloughs & lakes. A few cottonwoods along old  
lake margin near our nights camp are the first  
native trees seen since the few at Napobon.  
Also chokeberry bushes at one camp lake.  
Eleagnus bushes first seen near Medina, a  
small patch 2 miles south of town & others  
further north & abundant at Chase Lake &  
our camp <sup>at Chicago</sup> lake. A few new plants noted  
near Medina, the first lily & hairball.

Chase Lake is a shallow, stinking,  
barren abored alkaline slough with 4 small  
flat islands & 2 long points. It is so  
nasty & shallow & muddy & mean that it  
has been left for the Pelicans. We could  
see a few young pelicans on the island  
& one man said there were 2 doz. old  
birds & another said 100 old & yg.  
Neither seemed to know much about it as  
they had never been on the island & there  
are no boats in the country. We saw only  
3 old pelicans, flying south from the lake.

Lepus campanatus  
*tonkawae*

Shot an old ♀ Lepus campanatus, nursing ♾.

Weighted  $7\frac{1}{4}$  lbs. Seemed unusually large  
& weight estimated at 12 lbs.

Taxidea taxus, Dog food ♀ badges in corral  
brir. S. of Medina. Nursing young but nearly dry.  
Mammal  $1\frac{3}{4}$ , Pl.  $\frac{3}{2}$ , Specimen saved and  
entered in Eastgate's catalog.

A few miles N.E. of the lake are ~~two~~ two big  
tule sloughs that offer ideal breeding grounds  
for water birds, but the mosquitos would  
kill anyone who attempted to go near one  
of these sloughs. Out on the prairie they  
are fearful unless a strong wind is blowing,  
but near a marsh they are invulnerable.

Found the first muddy ducks & too sand  
grubes of the <sup>clayey</sup> tip in the <sup>lake</sup> at camp.

Chicago Lake to Hawksnest Butte.

June 30, Struck east to main road near Martstommoos, then north along the old Indian road from Ft. Yates Station to the Hawksnest Butte, drove to the top and camped on about the highest point of the butte, overlooking Carrington 8 mi. to the N.E., camp about 25 miles.

Most of the way is over rather rough prairie, with numerous sloughs and lakes & tick marshes, ridges pretty steep and stony, but mainly of good soil & luxuriant grass & prairie vegetation. The country is thinly settled much of the way & woods are poor and do not always connect between ranches. We drove some of the way over prairie, but without any trouble. Heavy rains have filled all the sloughs & water holes & mosquitos are swarming over the whole country.

A few scrubby little cottonwoods & some willows & chokeberry bushes were found along the borders of sloughs about midway of the distance, but otherwise *Elaeagnus* is the only conspicuous shrub of the prairie, except the dwarf rose & a few woody based *Amorphas* & the abundant *Artemisia frigida*.

Pedro's

On Hawksnest Butte an old sharp-tailed grouse with a family of young sputtered out from the side of the wagon. As I followed she hopped & fluttered along in front of me but when the dog saw her & came running she flew up about 4 feet from the ground & kept about 6 feet ahead of him till he was over the next ridge. That is her best card, leading coyotes & foxes away by the end of the nose till her young are safe & it seems to be perfectly learned.

Hawksnest Butte is a great glacial pile probably 300 feet above the prairie, evidently a relic of earlier glacial sheets which the last one plowed around & only accentuated. Its N & E. faces are full of deep gulches with springs & brush & timber, but mainly the butte is an uplifted mass of the prairie with all the prairie characteristics of sloughs, ridges, boulders, grass & prairie plants. On the high points are at least 7 old Indian mounds, usually 40 or 50 feet across & 4 or 5 feet high, old & flattened & several have been dug into.

The timber of the gulches is mainly bur oak, box elder & green ash, but with a dense scrubby growth of chokeberry, wild rose, currant, gooseberry, red raspberry & snowberry. Catbirds, wrens, flycatchers & yellow warblers are conspicuous, but only *Picomyscus* was caught in our traps & a cottontail was shot. Sharp-tailed grouse are common & a pair of *Buteo swansonii* seem to have a nest here.

Hawkesnest Butte to Grace City

July 1, Came down the east slope of Hawkesnest Butte and out across the valley to Carrington and across the Sheyenne River to Grace City and a few miles beyond to camp.

Aneroid on top of Butte read 2170 feet, in valley at east base 1570 feet and the same at Carrington, 13 miles N.E. of the peak. The peak stands 600 feet above the valley but I could not learn the alt. of Carrington to get its actual height.

The Sheyenne Valley is broad and rather level, very rich soil and largely under cultivation. Wheat, barley, oats and flax are the principal crops but potatoes & vegetables do well, and corn is quite extensively raised. Golden dent and Northwestern are said to be the best. Minnesota 13 is also a good variety here.

Came about 30 miles and camped near big marshes where mosquitos are numerous.

McC Henry to Stump Lake

July 2 Broke camp & continued east a few miles to McC Henry, then north to near Hanes, then east of Tolna & across the Shesenne River and north to Eastgates place on Stump Lake, where we arrived at 3 P.M. Took a boy & team back to Tolna & got my baggage & drove to Wishart's ranch where I staid before, at west end of lake. Came 40 miles to Eastgates & 10 more to the ranch, the last part in a heavy rain. This completes a 200 mile trip in 6 days, over prairie country all the way, good roads, good farms & good crops. There is practically no waste land & much of it is under cultivation. The cultivation could be greatly improved but good crops come easily.

The weather has been called hot for the whole trip but a strong S.E. wind blew steadily & at no time was the heat uncomfortable. But for the mosquitos the trip would have been very pleasant.

To Basswood & Red Willow Lakes

July 8 Drove about 10 miles south of Tolovana to Basswood Lake and then 2 miles south of there to a timbered slope on west side of Red Willow Lake, then around by a great number of lakes and sloughs and tule marshes back to Shimp Lake.

Basswood Lake is a small, tule bordered body of good fresh water, deep & full of fish, in a basin surrounded by hills and on the west bordered by a fine body of timber, 40 acres or more of dense woods. Basswood is common, also hazel & grape & *Ampelopsis*, but most of the timber is bur oak, Elm, ash, boxelder, thorn, plum, chokeberry, with spots of aspens & balsam poplar. Big springs come out along the sides of the gulches & the bottoms are wet & cold & full of interesting plants.

The woods west of Red Willow Lake are similar, with more extensive spring water bottoms full of aspens, balsam poplar & many northern plants as well as eastern. There is a little basswood, lots of hazel (*C. americana*), grape & such low plants as *Trillium*, *Sassaparilla*, yellowroot in flower, dewberry,

Boreal Islands

The spring water is icy cold and the best trapping ground I have found for shrews and boreal mammals is in these springy, swampy bottoms of gulches in the timber. At Stump Lake near the eastern end are similar spring bogs & cold willow gulches where Canadian zone willows, poplars, balsam poplars, *Pyrola secunda* & such plants grow. These are as typical Boreal Islands as are the sphagnum swamps of the east and they account in large measure for the apparent mixture of zones or overlapping.

Aspens grow commonly in cold gulches, on slopes where snow drifts unusually deep, on flat spots where spring water comes close to the surface and along streams or marshes of spring water, around Devil's, Stump, Basswood & Red Willow lakes and farther south. So do Balsam poplars & many other Canadian species.

The temperature of the spring water at Stump lake is  $40^{\circ}$  in winter,  $42^{\circ}$  in summer.

Oidema deglandi -

White-winged scoters are common in Devils Lake as they are in Stump Lake. A few pairs are seen in every section of the lakes wherever we came to the shores. At a rough estimate I should say there were several hundred in Stump Lake and, judging by the great size of those seen in a few places in Devils, and the great size of the lake, a few thousand in it.

These are the only places in N.Dak. where I ever saw them or heard of them and as they are the only salt lakes I know of, it is significant that these sea ducks should live & breed here in such numbers.

They are said to breed out on the prairie and I have seen one or sometimes a pair circling over the prairie and one pair in a little rain pool on the prairie. Eastgate says they do not nest until about the first of July.

To Devils Lake

July 9, Drove from Stump Lake west to Devils Lake and camped 4 miles east of the old Mission at edge of the timber. Set traps in the woods & along slough.

The prairie is generally pretty rough and hilly, especially near the lakes, where series of hills & ridges probably mark the old moraines. Some wide stretches of prairie are rather level & flat & these are generally under cultivation and much of the rolling country is also. A considerable part of the Indian Reservation is unbroken prairie, although the land was allotted years ago and is largely owned by white men now. It is good land but rather rough in places. The timber along the lake shores is the same low, dense woods of Elm, Oak, Ash, boxelder, aspen, balsam poplar, thorn, plum, chokeberry, grape, woodbine, bittersweet, hop vines etc. as is found at most of the lakes over this part of the state.

Devil's Lake to Sweetwater Lakes

July 10. Broke camp & by 8 AM were on the road. Caught only Eotomys, Microtus & Peromyscus.

Half way to the Mission we drove through an Indian camp in a beautiful spot on the prairie, overlooking a lake, the Devil's heart Butte & Sully's Hill and no end of rolling prairie. The white tepees glistened in the sun & the picturesque Sioux standing or squatting on the ground. Other tepees were seen near the little houses of the Indians, put up for summer use, just as the gray squirrels build summer nests in the trees to get rid of the fleas that swarm in their winter houses.

The old Mission stands in the woods on the south side of the lake but is not a very attractive spot. Gross, lonesome & illkept. The woods are brushy and the houses & buildings very common. The church might be of any little country town & the school would pass for a little wayside hotel.

Crossed the Narrows of Devil's Lake, then the Military wood Reserve, to the Chautauqua Grounds & Biological Laboratory. Here we met Gavod Brewster & Tufty & saw Dr. Grassick of Grand Forks.

The Wood Reserve & Chautauqua Grounds occupy the Peninsula, a timbered strip running nearly across the lake and including 1100 acres of woods.

This is untouched forest of large old elms & oaks & ash & boxelds. Groves of Aspens grow in springy places. This forest is the only one

I have seen that has not been cut or burnt & the trees are old & large, but not very high. Elms 4 feet in diameter are not over 50 or 60 feet I should judge.

A tangle of grape, Ampelopsis, Celastris & hop vines on the shrubby banks a very dense undergrowth.

The place would make a fine deer & elk park if fenced & could be used for the purpose as it is now held as a Military reserve.

Sully Hill is also a park of

probably 5 or 6 sections (Eastgate thinks)  
on the south side of the lake in the big  
forest of that slope. It is a  
great rounded hill

black with forest except on the top  
where there is open prairie.

Springs and cold gulches abound  
on its slopes. It also should be  
a game park & well fenced.

Deer, elk, & if some of the basal prairie  
were included buffalo & antelope could be  
inclosed & do well all the year around.

Devils Heart Butte is  
just S.E. of Sully Hill, a sharp,  
bare grassy butte of a  
conical form.

It is merely a sharp  
hill of the war and series bordering  
the lake.

Continued from the Biological  
station to Devils Lake town, then  
north to the west end of Southwater  
Lakes and camped on a timbered  
ridge near one of the large bodies  
of water forming this series  
of lakes.



## Sweetwater Lakes

Bison bison americanus - old bones & horns are numerous in the woods and around the shores of the lakes.

Cervus canadensis - An old elk antler was found near our camp in the timber by the lakes.

Citellus franklini - Abundant in the brushy places around the lakes.

Citellus idahoensis - One seen on the prairie but none in the brush.

Citellus richardsoni - Abundant over all the prairie along roads & in fields. Are beginning to cut the heading grain and have pulled down considerably.

Peromyscus maniculatus - Abundant but none taken.

Zapus campestris - One seen and thin cut grass piles are common in edge of meadows and brush.

Microtus demissus - Abundant, only 2 taken, but runways & cuttings seen all over marshes & in edge of sloughs.

Fibula cinnamomea - Common in the lakes. Numerous tails run out into the banks.

Thomomys talpoides - Common both on prairie & in woods & meadows.

Lepus flaccidus - Cottontails are numerous in the woods & brush. Eastgate says they reached Farlowe in 1890. One specimen sent.

## Sweetwater Lakes

July 11 - Caught Blaivas & Microtus. Saw 12 skunks & signs of cottontails & muskrats & tracks of badgers.

Eastgate saw a gopher & picked up an old elk horn. Cottontails are common & there may be varying bands in the thickets. Peromyscus have eaten the cockleburs all over the sandy banks.

Buffalo bones are numerous in the woods & on the lake shores. Franklin's ground squirrel is everywhere in the bushes. One bat was seen near camp.

Sweetwater lakes have gone down till they are now disconnected and we camped in the middle between 4 or 5 of them on a wooded point. Most of the borders are timbered down to the ice bank, then a sloping bank of sandy or weedy ground. Then tufts of reeds in wide border is out into the shallow margins. The Southeast lake, at which we camped in the NW corner, is shallow and water plants come to the surface over most of it. Sedges & gules are numerous over this & most of the lakes.

Some of the lakes are more open with prairie around part or all of the shores, and little or no plant life and these have fewer birds. Others are marshy bordered or just sloughs

## Sweetwater Lakes

Lynx canadensis - Come over prairie

Lynx americanus - Eastgate thinks they are here in the thickets of aspen & willow.

Says they are common at Devil's Lake & at Stump Lake.

Canis loturus nubricinus - Coyote tracks seen along lake shore

Taxidea taxus - Tracks & holes <sup>are</sup> common.

Thylamys ludovicianus - Skunks are numerous & are seen 12 or more evenings near camp, mostly by cornfield. They hunt in fields & nests along shore & probably destroy great numbers of eggs & young of water birds. Eastgate thinks the small flocks of young ducks are due to skunks.

Lutra vison lutifrons - Said to be common about the lake

See note by Eastgate on a breeding den.

Platina brevicauda - Two were caught under grass & weeds in a dry marsh, in Microtus runways.

Bat - one seen flying in evening but not seen.

of shallower water, full of water plants & algae.

There is a large area of timber and brush land in between the lakes and timber borders then on west of the ~~south~~ margins. The surrounding country is all prairie, largely under cultivation in grain, flax, corn & potatoes.





